



**AVINOR AS**

**Appendix F**

**The Purchaser's Contribution**

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## 1 Introduction

The Purchaser will reuse the existing radar-site, including buildings, equipment rooms and antenna tower. Below you can see image of site west and east.

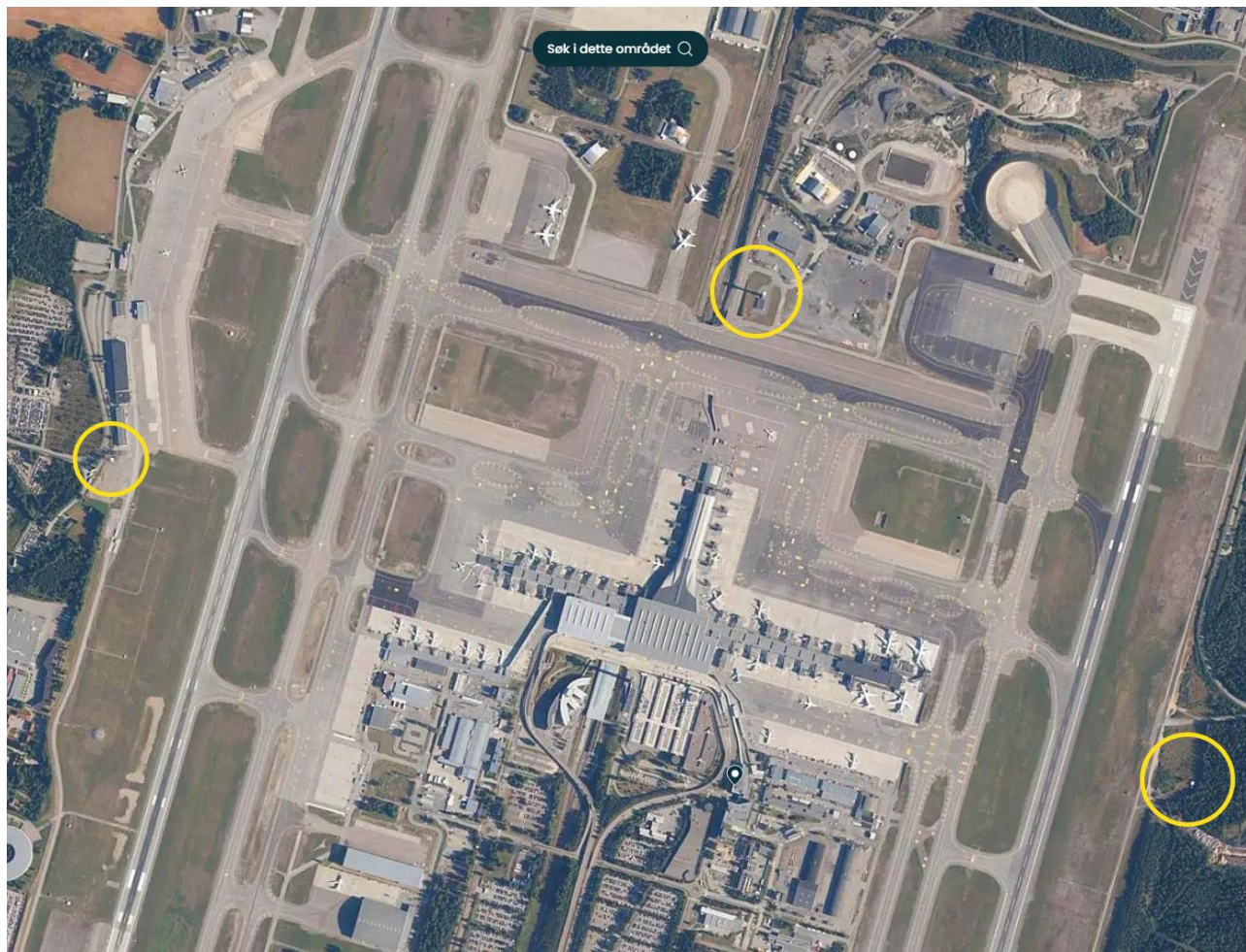


Information and available drawings for the existing site and installation is attached in Appendix E - Other specifications and drawings.

Within this document and other appendices (appendix A, D and E), you will find information about the site and operational environment (not all-inclusive). If more information is requested, please contact the project.

## 2 SMR overview

The current SMR surveillance at Gardermoen consists of three SMR sites (west, north and east).



### 2.1 Users and other stakeholder

SMR Surveillance data produces is provided to the Gardermoen Control Tower (TWR) and to the Oslo Approach at Røyken.

#### 2.1.1 Main users of data:

- Air Traffic Controller at Oslo Airport in Gardermoen TWR
- Air Traffic Controller at Oslo Approach (Røyken)

#### 2.1.2 Other operational use:

- Deice-operation
- Ground handling operation

### 2.2 System/delivery Interfaces

In this section the Purchaser has listed all system interfaces that will receive radar data or other information/data. The interfaces will be deeply covered during the design phase.

#### 2.2.1 SCANTER 5502-series

The delivery shall be directly interfaced to our existing SMR electronics delivered by Terma, the SCANTER 5502-series. Alarms to APOC would go through the SCANTER transceivers. There are serial interface available in the SCANTER transceiver for information exchange.

### 2.2.2 A-SMGCS (A3000)

Advanced-Surface Movement Guidance and Control System at Gardermoen. The A3000 uses radar data to display ground- and air traffic for ATCO's.

### 2.2.3 APOC

The airport has what called an Airport Operations Centre (APOC) with the key task to continuously monitor all airport systems 24/7 year around. Based on pre-defined levels and procedures they act on various alarms, events and status information provided. E.g. operator reports the issue occurred to the correct technical personnel who then respond accordingly.

### 2.2.4 ATM GWY

Information gathered by the SCANTER transceivers are converted and delivered on SNMP to the Purchaser information gateway. If the Delivery could not fully deliver through the SCANTER transceivers the information is preferred to be delivered on SNMP to the Purchasers ATM GWY.

### 2.2.5 Nagios

The Purchaser has/provides his own Nagios system, an IT management system where the intention is to monitor hardware parts, e.g. CMS function. Not intended to be applicable here but could be relevant pending on provided solution.

## 3 SMR facility overview

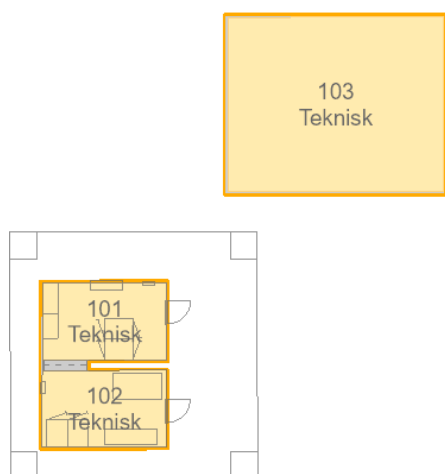
The delivery and installation works will be executed at the SMR sites East and West.

See Appendix E - Other specifications and drawings for addition drawing.

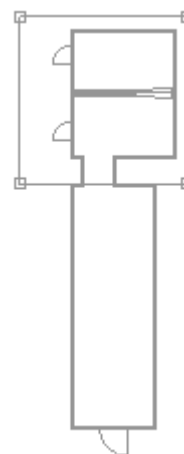
### 3.1 Equipment room

Minor parts of the Delivery are to be installed in the equipment room.

West:



East:



### 3.2 Site access

#### 3.2.1 Access Control System

Both sites have access control system in place controlling access to doors and premisses. The Contactor will have to attain ID-card for working on the airport and will through this gain access.

### 3.2.2 Construction areas

#### East

The Construction area on East is expected to be kept inside the airport premisses (red lines).



## West

The Construction area on the west-side could be split up a bit more due to a different fence-setup and has some different options. The Purchaser will not move fences as it is not expected to be needed. The Construction area will be further agreed in the planning phase together with the contractors and the airport to ensure all work is conducted in a secure way.



## 4 Site Infrastructure

### 4.1 Cable management

As there is an existing installation today, all cable trays for all types of cabling are in place for the existing equipment, The Purchaser expects much to be reused.

### 4.2 Electrical infrastructure

The Purchaser has good electrical capacity in the power distribution panel in the current installation. The AC power supply available is 230/400 Volt AC at 50 Hz. The distribution system is 3 phase, neutral + earth, according to IEC 364 3 TN-S system.

Uninterruptible power supply (UPS) will be provided at the main power switchboard inside the AFL substation. Maximum protection to be installed on the UPS is limited to circuit breaker B50/C25. The UPS short circuit delivery is 345A/400ms.

### 4.3 IT Network infrastructure

Avinor has its own network infrastructure. It is the common IT infrastructure for all systems at the airports. The interface connection point will be within the same room as the equipment.

#### **4.4 Cooling and Ventilation**

The Purchaser will reuse the existing cooling and ventilation systems that are in place today in the Equipment rooms.

Inside the radome Avinor will look into added some heating to keep it above 0 degrees Celsius.

#### **4.5 Fire Alarm system**

The Tower is not fitted with any fire alarm system, but the equipment room is.

The technical rooms have the following equipment installed:

- Smoke detection sensors
- Portable fire extinguisher
- Alarm central

#### **4.6 Radome Electric chain hoist.**

In normal operation the Purchaser has one Electric chain hoist mounted in the radome top panel to aid in lifting heavier objects like motors etc. during maintenance.

This capacity is planned to be replaced through the contract of the Radome-delivery and thus not be available in the period the radome is not in place.

### **5 Other**

#### **5.1 Toilet and office**

The Purchaser will provide a movable office and toilet facility for the Contractor to utilize.

#### **5.2 Training facility**

The Purchaser will ensure normal meeting room facilities for the training when on-site. This will not be directly at the SMR site, but at the airport.

#### **5.3 Dining**

There are dining options within the airport and outside, but not directly at the radar premises. Arrangements can be made.

#### **5.4 Accommodation**

The Contractor is not permitted to establish his own living quarters inside the area controlled by the Purchaser and must provide accommodation at their own cost.

#### **5.5 Use of Purchaser's Framework agreement**

The Purchaser has several framework agreements for various work e.g. electrical work, cranes, scaffolding, carpenter etc.

At the Contractors cost, arrangement can be made should the Contractor need or wish to utilize these.

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#### **5.6 Certificate for working at heights**

The Purchaser's personnel that are expected to perform maintenance of the antenna, radome etc. have all the needed certificates for working at heights.

## 6 Drawings

See Appendix E - Other specifications and drawings

## 7 Abbreviations

|                |                                                       |
|----------------|-------------------------------------------------------|
| <b>A3000</b>   | A-SMGCS system used at Gardermoen                     |
| <b>A-SMGCS</b> | Advanced Surface Movement Guidance and Control System |
| <b>AC</b>      | Alternating Current                                   |
| <b>AFL</b>     | Airfield Lighting                                     |
| <b>APOC</b>    | Airport Operations Centre                             |
| <b>APP</b>     | Approach Control                                      |
| <b>ATM</b>     | Air Traffic Management                                |
| <b>ATM GWY</b> | Message Gateway for ATM systems                       |
| <b>ATCO</b>    | Air Traffic Controller                                |
| <b>CMS</b>     | Control and Monitoring System                         |
| <b>ID</b>      | Identification                                        |
| <b>IEC</b>     | International Electrotechnical Commission             |
| <b>IT</b>      | Information Technology                                |
| <b>SNMP</b>    | Simple Network Management Protocol                    |
| <b>SMR</b>     | Surface Movement Radar                                |
| <b>TN-S</b>    | Terre-Neutral-Separate earthing system                |
| <b>TWR</b>     | Tower                                                 |
| <b>UPS</b>     | Uninterruptible Power Supply                          |